WHAT IS CLAIMED IS:

1. A method of manufacturing a surface acoustic wave device that has a surface acoustic wave filter including comb-like electrodes, electrode pads, and wiring patterns formed on a joined substrate produced by joining a piezoelectric substrate and a supporting substrate to each other,

the method comprising the steps of:

activating at least one of the joining surfaces of the piezoelectric substrate and the supporting substrate; and

joining the piezoelectric substrate and the supporting substrate in such a manner that the activated joining surfaces face each other.

2. The method as claimed in claim 1, wherein the activating step includes the step of carrying out an activation process, using ion beams, neutralized high-energy atom beams, or plasma of inert gas or oxygen, on at least one of the joining surfaces of the piezoelectric substrate and the supporting substrate.

3. The method as claimed in claim 1, wherein the activating step includes the step of carrying out an activation process by forming an intermediate film, in a vacuum, on at least one of the joining surfaces of the piezoelectric substrate and the supporting substrate.

4. The method as claimed in claim 1, wherein the joining step includes the step of joining the piezoelectric substrate and the supporting substrate at room temperature or by heating these substrates at a temperature of 100°C or lower.

5. The method as claimed in claim 1, further

comprising the step of annealing the piezoelectric substrate and the supporting substrate at 200°C or lower, the annealing step being carried out after the joining process.

6. The method as claimed in claim 5, wherein the annealing step is carried out when the piezoelectric substrate is thinner than the supporting substrate.

7. The method as claimed in claim 5, further comprising the step of thinning the piezoelectric substrate joined in the joining step, or dividing the surface acoustic wave filter that includes the piezoelectric substrate and the supporting substrate joined in the joining step, so as to form each chip,

wherein the annealing step is carried out after the thinning or dividing step.

8. The method as claimed in claim 1, wherein the step of joining the piezoelectric substrate and the supporting substrate is carried out in a vacuum, in an atmosphere of a high purity gas, or in the air.

9. The method as claimed in claim 1, further comprising the step of exposing at least one of the joining surfaces of the piezoelectric substrate and the supporting substrate, which have been activated in the activating step, to water or vapor.

10. The method as claimed in claim 1, wherein the piezoelectric substrate is a lithium tantalate or lithium niobate piezoelectric single-crystal substrate that is a rotated Y-cut plate having a surface acoustic wave propagation direction X.

11. The method as claimed in claim 1, wherein

the supporting substrate is a single-crystal substrate containing silicon or sapphire as a main component, or a ceramic substrate containing aluminum oxide, aluminum nitride, or silicon nitride as a main component.

12. The method as claimed in claim 1, wherein the supporting substrate has a resistivity of 100 Ω·cm or higher in an area immediately below the region in which the electrode pads and/or the wiring patterns are formed.

13. The method as claimed in claim 1, further comprising the step of forming an intermediate film that has a different main component from the main component of the piezoelectric substrate or the supporting substrate, the intermediate film being interposed between the piezoelectric substrate and the supporting substrate.

14. The method as claimed in claim 13, wherein the intermediate film contains silicon, silicon oxide, silicon nitride, or aluminum nitride as a main component, or is in the form of a conductive layer.

15. The method as claimed in claim 13, wherein the intermediate film is divided into parts.

16. The method as claimed in claim 13, wherein the intermediate film is divided into parts each having a smaller length than the aperture length of the comb-like electrodes.

17. The method as claimed in claim 13, wherein the step of forming the intermediate film is carried out so that the intermediate film is formed in a region that is not situated immediately below the region in which the electrodes pads and/or the wiring patterns

are formed.

18. The method as claimed in claim 1, wherein the supporting substrate is a SOS substrate that has a silicon film formed on a sapphire substrate.

19. The method as claimed in claim 1, wherein the supporting substrate is a SOI substrate that has an insulating film and a silicon film stacked on a silicon substrate.